

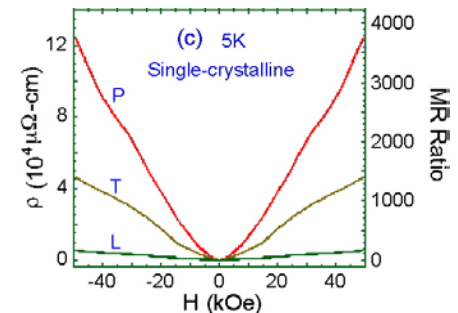
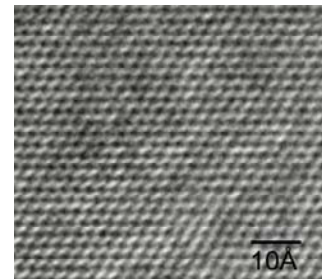
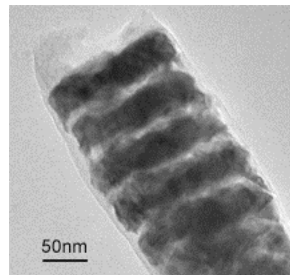
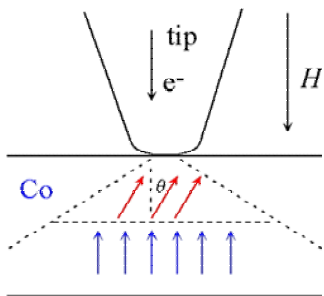


# CURRENT TOPICS IN MAGNETOELECTRONICS WORKSHOP

Johns Hopkins University MRSEC DMR00-80031  
September 3, 2003



On September 3rd, the JHU MRSEC hosted a workshop on magnetoelectronics. The workshop attracted more than 70 attendees and included speakers from industry, national laboratories, and universities, along with a student poster session. Dieter Weller from Seagate Research described the latest developments in nanostructured disks for magnetic recording. Mark Johnson from NRL presented an overview of the fundamentals of spintronics and Jimmy Zhu from CMU discussed new approaches for design of elements for magnetic recording and spintronics. Lloyd Whitman from NRL described biosensors based on magnetic labeling. Other speakers included Chia-Ling Chien (JHU), Gang Xiao (Brown), and Peter Searson (JHU).





# Nanoporous Gold (NPG) Nanowires

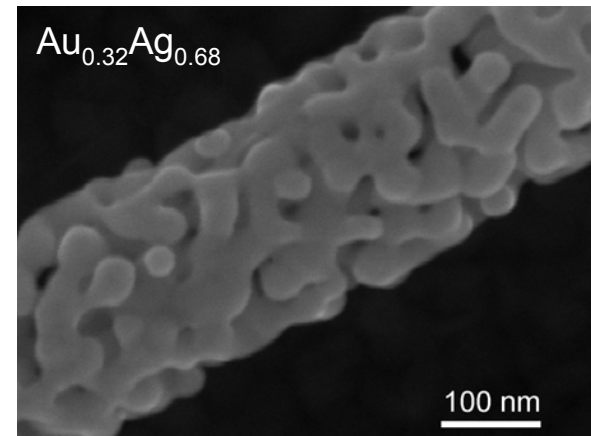
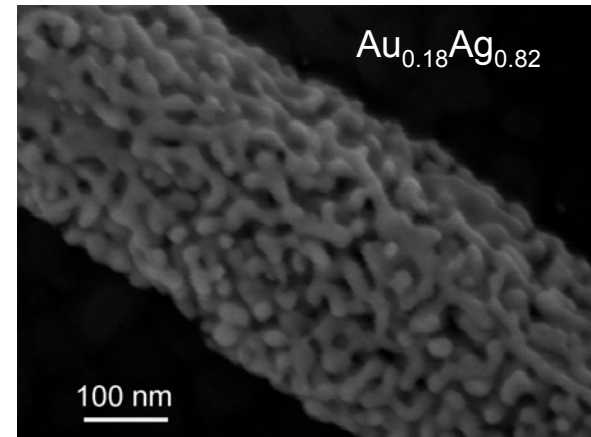
## MRSEC (Johns Hopkins University) DMR00-80031

### Background

We have developed a technique for the fabrication of nanowires with high surface area and well-defined pore morphology. Nanoporous gold (NPG) nanowires have been fabricated from single-phase, two-component alloys (e.g.,  $\text{Au}_{0.18}\text{Ag}_{0.82}$ ), followed by preferential etching of the silver. The structure and morphology are dependent on the alloy composition (see images).

### Scientific and Technological Interest

- Electron transport in reticulated geometries
- Magnetic properties of multi-connected domains
- Sensors
- Tissue engineering
- High surface area particles



- C. Ji and P. C. Searson, "Fabrication of Nanoporous Gold Nanowires," *Appl. Phys. Lett.* **81**, 4437 (2002).
- C. Ji and P. C. Searson, "Synthesis and Characterization of Nanoporous Gold Nanowires," *J. Phys. Chem. B* **107**, 4494 (2003).
- C. Ji, G. Oskam, Y. Ding, J. D. Erlebacher, A. J. Wagner, and P. C. Searson "Deposition of  $\text{Au}_x\text{Ag}_{1-x}/\text{Au}_y\text{Ag}_{1-y}$  Multilayers and Multisegment Nanowires," *J. Electrochem. Soc.* **150**, C523-528 (2003).